1853MNRAS..14...16L

On the Zodiacal Light. By E. J. Lowe, Esq. F.R.A.S. F.G.S.

During the past spring the observations on the *western light* have been but few, owing to the great prevalence of cloud during the early portion of the evening. However, as on several occasions some of the features were well marked, I have forwarded these records as a continuation of my former reports on this subject.

Epoch 1853, January 31st, $6^{h}\ 45^{m}$.

The light was very brilliant for half an hour, the north edge being most clearly defined. The north edge passed between No. 77 and No. 82 *Pegasi*, and the south edge near *i Ceti.* The apex of the cone advanced and receded in half-minute intervals as much as 5°, its greatest altitude being ε *Piscium:* owing to a stratus stretching along the valley its extent on the horizon could not be well observed; by producing the two edges it was thought to cut the horizon 10° N. of W. and 30° S. of W.

Epoch 1853, February 27th.

Faint and confused; aurora borealis occurring at the time.

Epoch 1853, March 8th, $7^{h}\ 45^{m}$.

Somewhat brilliant, yet only occasionally well defined on the edges. It had pulsations of greater and less brilliancy, and at times the north edge was clearly defined; at such periods the north edge passed about 10′ S. of γ *Arietis;* the light seldom reached this star, being mostly midway between γ and No. 2 *Arietis:* the star η *Ceti* was also near upon the edge. The cone rose to the altitude of *Saturn*, but was slightly north of that planet, the apex being midway between *Saturn* and the *Pleiades in direction*, but not higher than the altitude of *Saturn.* The base was hidden by a stratus. The stars were alternately dimmed and again bright beneath it; some were constantly disappearing, perhaps twice a minute, more especially in the centre of the phenomenon: once bars, or streams of light, were apparent on the north edge. At this moment the light was brightest, and the north edge most clearly defined.

Epoch 1853, March 29th, $8^{h}\ 30^{m}$.

The light tolerably bright. The south edge passed midway between ο *Tauri* and λ *Arietis;* the north edge *did not keep a fixed position*, fluctuating from 2° beyond α *Arietis* to midway between α and β *Arietis;* the apex also oscillated from the *Pleiades* to 2° beyond that group (being an oscillation of 2° vertically). The extent on the horizon was 30°. The axis passed through π *Arietis.* The light was brightest along the axis. Stars were slightly dimmed; they also did not scintillate so much *within* as *without* the phenomenon. At one period ($8^{h}\ 45^{m}$) there was a double edge on the north side, the inner (or new edge) being very brilliant, and passed 4° W. of α *Arietis.* This second edge was visible 5^{m}. The pulsa-

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tions of brightness were in about half-minute intervals, both horizontally and vertically at the same time. The phenomenon was most brilliant when most expanded.

I feel persuaded that the periodical change in brightness and the expansion and contraction of the cone is not produced by our atmospheric influence, as it is always apparent when the phenomenon is brilliant, whatever be the hygrometrical state of the air. It appears to me to be owing to *a rotation of the cone*, and that the light is not always *equally bright* in all parts. In those countries where the zodiacal light is very brilliant it would be well to observe these features carefully.

On the Telescopic Appearance of Saturn. By the Rev. W. R. Dawes.

"The present autumn has hitherto afforded so few opportunities for delicate observations with high powers, that the following results of two or three examinations of *Saturn*, under favourable circumstances, may not, it is hoped, be unacceptable to the Society.

"1853, Oct. 24, $12^h\ 45^m$ G.M.T. $8\frac{1}{2}$-foot refractor, powers 350, 460, and 640. When best seen, the *dark line* on the outer bright ring (A) was so plain that it could scarcely be overlooked during careful scrutiny of the ring. Occasionally, when particularly fine views occurred, the line seemed to extend itself a long way round; but usually not further than a tangent to the inner edge of the inner bright ring (B). It seemed equally visible at both ends of the ring, and occupies precisely the same position as it did last year and the year before, viz. just outside the middle of the ring.

"The nebulous ring (C) was extremely obvious, and struck me as rather *brown*. At times there seemed to be an exceedingly narrow dark line between the rings B and C at the ansæ, but I could not feel sure of it. The interior edge of the ring C was very well defined, and the diminution of its brightness towards its inner edge seemed to me unquestionable. The ball was very plainly seen through the nebulous ring; more plainly than I ever saw it before; the circumstances being more favourable than any of which I was able to avail myself last year.

"The *belts* are not so decided as they were last year, except the narrow belt round the south pole, which is very complete and uniform. It is of a neutral tint; but the southern hemisphere of the planet, south of the broad brownish band near the equator, certainly has a greenish hue. The broad band is not distinctly separated from the lighter shade south of it; nor is it decidedly divided into two by a bright line as it was last year, though its surface is obviously not uniform.

"While scrutinising the southern portion of the planet, I was struck with the appearance of a small black spot on the *eastern* side of the ball upon the ring B, just within the division of the rings A and B. When most sharply defined, it appeared somewhat triangular. It is, no doubt, the same as was noticed by Mr. Lassell

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